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## ORIGINAL RESEARCH

# Improving village health post (Ponkesdes) nurses' performance, which model should be used?

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**Received:** January 26, 2014

**Accepted:** March 19, 2014

**Online Published:** April 15, 2014

**DOI:** 10.5430/jnep.v4n7p24

**URL:** <http://dx.doi.org/10.5430/jnep.v4n7p24>

## Abstract

**Background:** Village Health Post (Ponkesdes) has become a part of Public Health Nursing (PHN) program since year 2009 which criticized has a poor performance. From 2910 Ponkesdes that spread all over East Java region, only 10% of nurses implemented PHN. This situation will hamper the regional health development particularly and the nation commonly.

**Objective:** The purpose of this study was to develop a new model to improve the performance of Ponkesdes nurses' especially in implementing PHN.

**Method:** The method was an observational analytic with cross sectional approach. Multi stage random sampling was employed to decide the district and simple random sampling was assigned to choose the participants, a total of 117 Ponkesdes nurses involved in this study. The study conducted in four districts in East Java Province (Blitar, Jember, Lamongan, and Bangkalan). Data were collected by questionnaire on variables namely reinforcing, personal, cognitive, affective, commitment, interaction, and nurses' performance factors. The Partial Least Squares (PLS)-method is used for constructing predictive model.

**Results:** This study found a new model which was developed based on combination of Health Promotion Model (HPM) and Health Interaction Model (HIM) with additional of reinforcing factor. Statistical result confirmed that personal, affection and interaction factors considered as important factors in improving Ponkesdes nurses' performance.

**Conclusion:** Ponkesdes nurses' performance will improve by considering three main factors, personal, affection and interaction. This model can be adapted by Provincial District Health Office East Java Province as the main actor in regional health development. In addition, this model may become a reference for other province in improving their nurses' performance in community setting and other country that have similar program in PHN.

## Key words

Ponkesdes, Public Health Nursing (PHN), Nurses' performance

## 1 Introduction

Indonesia's health infrastructure widely available for primary care services that is acknowledged by the government as critical resources in health development<sup>[1]</sup>. One of the health resources was Village Health Post (Ponkesdes) which is rely

on village resources. Ponkesdes was an important program launched by the district government of East Java province since year 2009<sup>[2]</sup>. This health program was a creation during decentralization era that allowed the district government to make innovation in health sector<sup>[3]</sup>. Ponkesdes derived from the development of Maternity Village Post (Polindes) to answer the latest challenge of health problem. The main purpose of Ponkesdes was improving the health status of community in every village. Ponkesdes staffed by public health nurse and midwife that provide basic health services to the villager. By the end of 2013, there were 2910 (51.06%) Ponkesdes out of 5700 Ponkesdes was established to achieve the target. Under this Ponkesdes, there were 2910 nurses has been deployed to serve in village areas<sup>[2]</sup>. As nurses assigned in Ponkesdes their duty was similar with public health nurse, protecting and serving the health need of community<sup>[4]</sup>. The outcome of Public Health Nursing activity was empowering individual, family and community to be aware and independent in solving their health problem<sup>[5]</sup>. The poor performance of Ponkesdes nurse in implementing Public Health Nursing (PHN) activity has been reported by Provincial Health Office of East Java by only 10% (291) nurses out of 90% (2619) carried out PHN activity. This problem will hamper the health development if not addressed properly. Addressing this, the author propose a model to facilitate nurse performance by combining Health Promotion Model (HPM)<sup>[6]</sup> and Human Interaction Model (HIM) theory<sup>[7]</sup>. HPM used because dealing with nurses' behavior in promotion and prevention health services and HIM used to facilitate the health services. Our goal was developing a model to increase nurses' performance in the implementation of PHN by mixing these two theory.

## 2 Methods

The present study was observational analytic with cross sectional approach. There were six variables with each indicator as listed in Table 1. Content and construct validity used to ensure each items in questionnaire was valid and reliable<sup>[8]</sup>. Focus Group Discussion with relevant stakeholders and expert nurses in Public Health Nursing was done to confirm the draft model. Inferential analysis techniques were used to test the empirical model and the hypotheses proposed in this study. The suitability of the model tested by hypothetical construct Structural Equation Model (SEM) which was called the Partial Least Square (PLS)<sup>[9]</sup>. Structural model could be evaluated by looking at the value R square( $R^2$ ), parameter coefficient paths (path coefficient parameter),  $f^2$  test and blind folding test ( $Q^2$ ). Similarly, multiple regression analysis  $R^2$  using the PLS function to see how much diversity could be explained by the endogenous variable and exogenous variables. The size effect could be used to determine the strength of the effect of exogenous latent variables on endogenous latent variables in the model was established. While the  $Q^2$  value used to see the relevance of the construct predictive variables endogenous to the type of reflexive indicators<sup>[10]</sup>.

### 2.1 Participant and setting

To get a good result of SEM with maximum likelihood method, a minimum sample size of 100-150 respondents were suggested<sup>[8]</sup>. The inclusion criteria of the respondents as following:

- 1) Having a decree of assignment as Ponkesdes nurses
- 2) Completing early briefing before the assignment
- 3) Having a nurse' license
- 4) Living in Ponkesdes

Multi stage random sampling was used to select the participants' region (district, sub-district and village). There were four districts selected to conduct this study namely Blitar, Jember, Lamongan, and Bangkalan. From these districts, simple random sampling employed to choose nurses who represent each district. Researcher used lottery system from Provincial Health District Database on each district. 150 nurses generated in this method, however only 117 nurses meet the inclusion criteria. Self-survey questionnaire has been deployed to each nurse in designated Ponkesdes. After fill out the questionnaire, the respondent asked to place the questionnaire on the box located in each District Health Office. The box has been provided by researcher and information disseminated to the respondent in the first meeting with the researcher. After two week from the first meeting, researchers took the box and send it to the base. A 100% response rate from 117 Ponkesdes nurses was achieved. Research has been conducted from 3 months starting from May year 2013.

**Table 1.** Variables and indicators in this study

Variables		Indicator	
(X1)	Reinforcing factors	X1.1	Legal aspect of Ponkesdes nurse
		X1.2	Policy aspect by Province Health Office
		X1.3	Financing factor of Ponkesdes
		X1.4	Ponkesdes infrastructure
(X2)	Personal factors	X2.1	Biologic
		X2.2	Psychology
		X2.3	Socio-cultural
(X3)	Cognition factor	X3.1	Benefit from the action
		X3.2	Challenged from the action
		X3.3	Self-efficacy
		X3.4	Activity related to the willingness
		X4.1	Interpersonal influence
		X4.2	Situational influence
(X4)	Affection factor	X4.1	Interpersonal influence
		X4.2	Situational influence
(X5)	Commitment factor	X5.1	Interest
		X5.2	Intention
		X5.3	Awareness to comply
(X6)	Interpersonal factor	X6.1	Personal interaction
		X6.2	Interpersonal Interaction
		X6.3	Social Interaction
(Y)	Nurses' performance in Ponkendes	Y1.1	Guidance of high risk family
		Y1.2	Implementation of clean and healthy lifestyle
		Y1.3	Individual nursing care
		Y1.4	Family nursing care
		Y1.5	Specific group nursing care
		Y1.6	Community nursing care

## 2.2 Ethical clearance

Participants signed a written consent form before joining this study. They were informed that this study was voluntarily and they can withdraw anytime as they wish. The ethical clearance was approved by the ethical commission, Airlangga University, Surabaya, Indonesia. Formal permission to conduct this study also obtained from Provincial Health Office and District Health Office East Java.

## 3 Result

117 Ponkesdes nurses joined in the study that assigned in four district all over East Java province. As shown in Table 2, 41% of Ponkesdes nurses assigned in Blitar district and more than a half of nurses were female 61%. Table 3 showed that 37% nurses aged between 26-30 years old.

**Table 2.** Distribution of Ponkesdes nurses by their region and gender

District	Ponkesdes nurses	Gender	
	n (%)	Male	Female
Blitar	48 (41)	22	26
Jember	28 (24)	8	20
Lamongan	20 (17)	6	14
Bangkalan	21 (18)	10	11
Total	117 (100)	46	71

**Table 3.** Distribution of Ponkesdes nurses by age

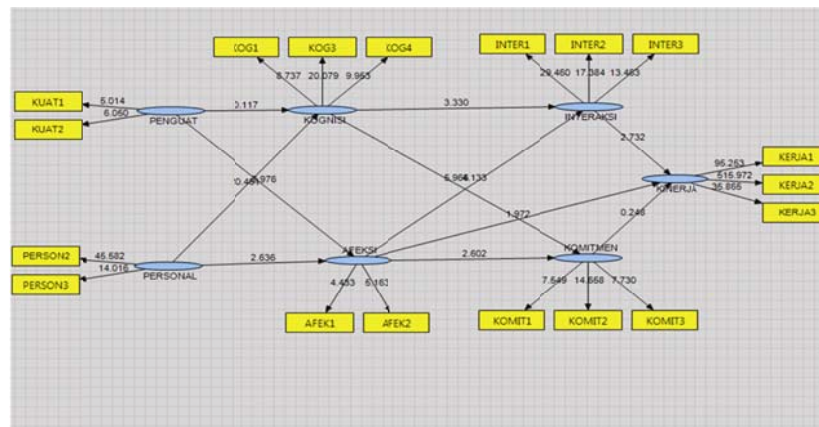
Age	n (%)
20-25	15 (12, 82%)
26-30	44 (37,61)
31-35	36 (30,77)
36-40	22 (18,80)
Total	117

**Table 4.** Coefficient Parameter Path in construct Latent Variables between Direct and Indirect Effects

Causality relationship between direct and indirect exogenous and endogenous variables	Coefficient parameter path	Standard Error	T statistic	Remark
(X1) to (X3)	0.009	0.078	0.117	Not significant
(X1) to (X4)	0.336	0.113	2.976	Significant
(X2) to (X3)	0.631	0.060	10.461	Significant
(X2) to (X4)	0.243	0.092	2.636	Significant
(X3) to (X5)	0.423	0.071	5.965	Significant
(X3) to (X6)	-0.253	0.076	3.330	Significant
(X4) to (X5)	0.201	0.077	2.601	Significant
(X4) to (X6)	-0.388	0.094	4.132	Significant
(X3) to (Y)	0.065	0.047	1.364	Not significant
(X4) to (Y)	0.343	0.102	3.362	Significant
(X5) to (Y)	-0.023	0.094	0.248	Not significant
(X6) to (Y)	-0.296	0.108	2.731	Significant
(X2) to (Y)	0.124	0.045	2.754	Significant
$R^2_{(\eta1)}$				0.190868
$R^2_{(\eta2)}$				0.400291
$R^2_{(\eta3)}$				0.281663
$R^2_{(\eta4)}$				0.285766
$R^2_{(\eta5)}$				0.201286

Notes. The result of smart PLS 2.0

As shown in Table 4, there were significant relationships between personal, affection and interpersonal factors to the nurses' performance (T count>1.96). Convergent validity of the test results with the Smart - PLS software v 2.0 on the development of nurses' performance could be seen on the outer loadings models as Figure 1. The value of each loading factor shown in the figure below.

**Figure 1.** Path diagram of the structural equation model of each indicators on latent variables after eliminating insignificant variables

To validate the predictive model as a whole could be seen from the value of Goodness of Fit (GoF) absolute with the following formula:

$$GoF = \sqrt{Com \cdot R^2}$$

Based on the calculation, the communalities average value was 0.659, while the average  $R^2$  value was 0.272 so calculation of the GoF prediction model as follows:

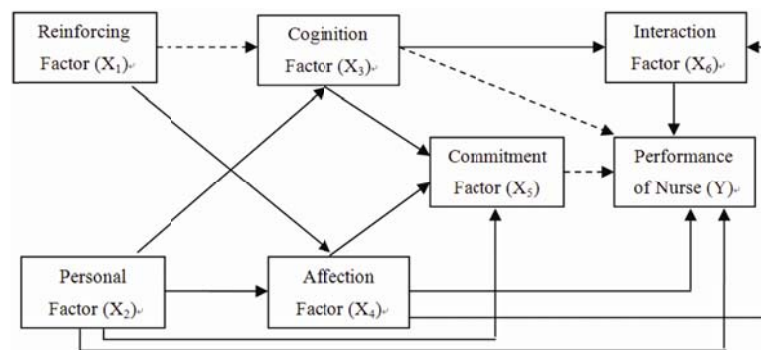
$$GoF = \sqrt{0,659008 \times 0,2719748} = 0,43$$

Based on the above GoF value of 0.43, the prediction model in this study was strong in explaining the effect of the study variables<sup>[10]</sup>. To see the relevance of the size of the prediction (predictive relevance) of the endogenous latent variables with reflective indicators could be done through blindfolding procedure to calculate the  $Q^2$  value scale, which a construct had relevance if it had a good predictive value<sup>[10]</sup>  $Q^2 > 0$ . In this study  $Q^2$  calculated as follows:

$$Q^2 = 1 - \frac{SSE}{SSO} = 1 - \frac{0,075}{0,086} = 0,13$$

From the blindfolding test results were known 0.13 ( $Q^2 > 0$ ), meaning that the model established in this study had good predictive relevance.

The final model is recommended for improved performance of Ponkesdes nurses in the implementation of PHN in East Java can be seen in the Figure 2.



**Figure 2.** Nurses' performance model in the PHN Implementation in East Java

## 4 Discussion

The result found that Ponkesdes nurses performance would improve by considering some other factors. First factor was personal factor, affection factor and interaction factor. As shown in table 1, personal factors have three indicators, which related to the biology, psychology and socio-cultural aspect. Biology as described here was age, gender and original background from of a nurse. In this research, most of the nurse aged in productive age, female and recruited from the same region with the assignment place. Psychology factor here related with the motivation that the entire nurse had high motivation to be posted and served in Ponkesdes. Interaction factor here consisted of ethnic, religion and approach to the local leader. Majority of nurses were Javanese and Madurese ethnic, Muslim religion (100%) and they believe that the closeness with the local leader (100%). Nursalam in year 2010 stated that the capability of nurses or self-capacity have a closed relationship with their performance in the workplace<sup>[11]</sup>. Therefore, the need of upgrading or updating nurses' knowledge and skill should be considered in organizational cycle<sup>[12]</sup>.

Second factor was affection factor that consisted of two indicators, interpersonal and situational influence. Ponkesdes nurse showed that 88% having good interpersonal influence and 75% having good situational influence. According to Purwanto year 2008 stated that extrinsic factors affecting performance were supervision, working conditions, interpersonal relationships (affection), safety and hygiene<sup>[13]</sup>.

Third factor was interaction factor which consisted of three indicators, personal, interpersonal and social interaction. 42% of nurses had less personal interaction, 64% nurses had less interpersonal interaction and 52% nurse had less social interaction. The need of interaction whether with the patient or with other profession must be considered in community setting. Interaction involved many skill including communication, and nurse should be able to interact and try to understand what the client need <sup>[11]</sup>. The nurse deficit on this aspect will hamper the quality of nursing care to be delivered in community.

Additional factor was reinforcing factor namely legal aspect, policy, financing and infrastructure. From legal aspect, majority nurses had a decree as Ponkesdes nurse, license, working permission as a nurse and professional membership of Indonesian National Nurses Association. In the policy aspect, majority Ponkesdes nurses supported by Governor Decree of East Java province to practice as their competency. Majority nurses disappointed with the financing system of Ponkesdes. Lack of money in administrative and operational basis has been reported by all nurses (100%). All of the Ponkesdes nurses (100%) viewed that they have good infrastructure. Overall, East Java government fully supported this program, however share responsibility between district and province government must be considered <sup>[14]</sup>. In decentralized system, health human resources in the district and province have changed. District and province can recruit, manage and retain their health workforce to meet the need of community <sup>[15,16]</sup>. This opportunity may solve the problem for the district that suffered of health workforce shortages.

This model may become an option for the government of East Java province to improve the performance of Ponkesdes nurses in the region. Other issue should be raised was the coordination between district and province government related to the nurse salary. As this program particularly running in East Java province, the nurse welfare (salary) also highlight in this study. Increasing their salary may lead to better performance by considering other factors found in this study.

## Implication for nursing practice

Indonesia still struggling with the high Maternal Mortality Rate, the rate in year 2012 was 359 per 100,000 live births <sup>[17]</sup>. From this number, East Java province contributed for 97 death per 100,000 live births <sup>[18]</sup>. Ponkesdes nurse as one of the PHN activity in East Java province trying to address health problem. Nurses' availability in every village all over the province will contribute to the need of community. Poor performance of Ponkesdes nurse can be addressed by continuing education of PHN through Community Health Center. Province Health Office can conduct regular monitoring and evaluation of Ponkesdes nurses in relation to the PHN activity. Cooperation inter stakeholder particularly with professional association should be strengthened. This model can become an option for the government to accelerate the performance of Ponkesdes nurses.

## 5 Conclusion

This model derived from blended theory HPM and HIM with addition to reinforcing factors. The strength of this model influenced by personal factors, affective factors and interactions factor (the three major factors) in changing the behavior of nurses in implementing PHN.

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